

"On this first jubilee-day of your College the question may be fairly asked whether it has fulfilled the object of the founder. We are told that his idea was to provide, in a great centre of population, commerce and industry, 'higher education in such branches of learning and science as were usually taught in the English universities.' Those who joined with Mr. Owens in this scheme recognised that in the great commercial centres there was both the opportunity for and the need of something in the nature of real university life. Perhaps the best proof of the wisdom of the policy adopted in the case of Owens College is the fact that in nearly all the largest towns of the country there have been founded during the last thirty years colleges to a very large extent on similar lines. Owens College has sent many teachers, not only to these, but to the old Universities of Oxford and Cambridge. And we may also, on this jubilee-day, take stock of those influences which have been instrumental in thus successfully developing and carrying out the original scheme of the founders. Will Owens College ever cease to venerate the names of Owens, Beyer, Christie, Whitworth, and other noble benefactors to whose munificence is chiefly due her creation, endowment and material prosperity? Can she ever be sufficiently grateful to those great teachers and students who have not only by their genius and force of intellect maintained in the College a high standard of learning, but also by their personal example have helped to form the characters and guide the lives of those who have been so fortunate as to come under their influence? Amongst these former eminent leaders, two—Dr. Ward and Sir Henry Roscoe—are, I am sorry to say, prevented by illness from taking part in to-day's ceremony. But great as have been these different forces in building up this vast and important educational machinery, they would not be sufficient without the strength and sustenance which has been secured by local patriotism and local enthusiasm. I feel sure that Owens College may always count with confidence upon a generous local municipal support to enable it to keep abreast of the ever-growing demands of modern life, whether it be in the arts, in science, or other departments of a liberal education."

In connection with the celebration, the honorary degree of D.Sc. was conferred by the Victoria University upon the following distinguished men of science:—Presented by Prof. Young, Dean of the Medical Department: Sir Thomas Barlow, Sir J. S. Burdon Sanderson, Sir W. S. Church, Mr. H. G. Howes and Prof. Simpson. Presented by Prof. Schuster: Prof. Becquerel (Paris), Prof. Chodat (Geneva), Prof. G. Carey Foster, Dr. J. W. L. Glaisher, Principal E. H. Griffiths, Principal Hicks, Dr. E. W. Hobson, Prof. G. B. Howes, Prof. W. Jack, Principal Lodge, Prof. Nernst (Göttingen), Prof. Poynting, Prof. Tilden, Prof. Voigt (Göttingen), and Prof. Marshall Ward. The honorary degree of M.Sc. was conferred upon Mr. C. Bailey, Mr. Francis Jones and Mr. J. H. Reynolds.

CELEBRATION OF THE TWENTY-FIFTH ANNIVERSARY OF THE JOHNS HOPKINS UNIVERSITY.

THE twenty-fifth anniversary of the foundation of the Johns Hopkins University was celebrated at Baltimore last month. The commemorative address delivered by Dr. D. C. Gilman, for twenty-five years president of the University, and now president of the Carnegie Institution, is published in *Science*, together with the address delivered by Prof. Remsen upon his inauguration as president of the University. The assembly was one of the most noteworthy that has been gathered together in America, being composed of leaders in many branches of intellectual activity. In the course of the ceremonies an address, signed by more than one thousand alumni of the university and others, was presented to Dr. Gilman. We give extracts from the addresses delivered by Dr. Gilman and Prof. Remsen.

In the course of his address Dr. Gilman said:—

When this university began, it was a common complaint, still uttered in many places, that the ablest teachers were absorbed in routine and were forced to spend their strength in

the discipline of tyros, so that they had no time for carrying forward their studies or for adding to human knowledge. Here the position was taken at the outset that the chief professors should have ample time to carry on the higher work for which they had shown themselves qualified, and also that younger men, as they have evidence of uncommon qualities, should likewise be encouraged to devote themselves to study. Even those who were candidates for degrees were taught what was meant by profitable investigation. They were shown how to discover the limits of the known; how to extend, even by minute accretions, the realm of knowledge; how to cooperate with other men in the prosecution of inquiry; and how to record in exact language, and on the printed page, the results attained. Investigation has thus been among us the duty of every leading professor, and he has been the guide and inspirer of fellows and pupils, whose work may not bear his name, but whose results are truly products of the inspiration and guidance which he has truly bestowed.

The biological laboratory, the first establishment of its kind in the United States, has carried forward for many years the study of marine life at various points on the Atlantic and has published many important memoirs, while it has trained many able investigators now at work in every part of the land. Experimental psychology was here introduced. Bacteriology early found a home among us. The contributions to chemistry have been numerous and important. Here was the cradle of saccharine, that wisely diffused and invaluable concentration of sweetness, whose manufacturers unfortunately do not acknowledge the source to which it is due. In the physical laboratory, light has been thrown upon three fundamental subjects—the mechanical equivalent of heat, the exact value of the standard ohm, and the elucidation of the nature of the solar spectrum. For many years this place was the chief seat in this country for pure and advanced mathematics.

I cannot sit down without bringing to your minds the memories of those who have been with us and have gone out from us to be seen no more: Sylvester, that profound thinker devoted to abstractions, the illustrious geometer whose seven prolific years were spent among us and who gave an impulse to mathematical researches in every part of this country; Morris, the Oxford graduate, the well-trained classicist, devout, learned, enthusiastic and helpful, most of all in the education of the young; accomplished Martin, who brought to this country new methods of physiological inquiry, led the way in the elucidation of many problems of profound importance, and trained up those who have carried his methods to every part of the land; Adams, suggestive, industrious, inspiring, versatile, beneficent, who promoted, as none had done before, systematic studies of the civil, ecclesiastical and educational resources of this country; and Rowland, cut down like Adams in his prime, honoured in every land, peer of the greatest physicists of our day, never to be forgotten in the history of physical science. I remind you also of the early student of mathematics, Thomas Craig, and of George Huntington Williams, the geologist, whose memory is cherished with admiration and love. Nor do I forget those who have here been trained to become leaders in their various departments throughout the country. One must be named, who has gone from their number, Keeler, the gifted astronomer, who died as the chief of the Lick Observatory in California, whose contributions to astronomical science place him among the foremost investigators of our day; and another, the martyr Lazear, who, in order that the pestilence of yellow fever might be subdued, gave up his life for humanity.

Prof. Remsen chiefly dealt in his address with the development of the university idea in America, and showed that the noteworthy characteristic of educational work in recent years is the philosophical faculty in the universities and the surprisingly rapid increase in the attendance upon the courses in such faculties. He remarked:—

In 1850 there were 8 graduate students in all the colleges of America. Of these, 3 were enrolled at Harvard, 3 at Yale, 1 at the University of Virginia and 1 at Trinity College. In 1875 the number had increased to 399. In 1900 the number was 5668. At present the number cannot be far from 6000.

In order that these facts may be properly interpreted, we should know how many Americans are studying in foreign

universities. The records show that in 1835 there were 4 American students in the philosophical faculties of German universities; in 1860 there were 77; in 1880, 173; in 1891, 446; in 1892, 383; in 1895, 422; and in 1898, 397.

These figures show clearly that the increase in the attendance at American universities is not accounted for by a falling off in attendance at German universities. On the other hand, they do show that for the last ten years at least there has been no increase in the attendance at German universities, but rather a slight decrease.

Six thousand students are, then, to-day pursuing advanced courses in American universities, while not longer ago than 1875 the number was only about 400. In this connection it must further be borne in mind that during this period the colleges have not relaxed in their requirements. The tendency has been in the opposite direction. So that it means to-day more rather than less than it did in 1875 to be a graduate student. That there is an increasing demand for university work is clear, and it seems to be destined to play a more and more important part in the development of educational methods.

University work is not something apart, independent of other kinds of educational work. It is a necessary part of the whole system. It affects not only the colleges, but schools of all grades, and must, therefore, have a profound influence upon the intellectual condition of the whole country.

But the universities are also doing another kind of work of importance to the country. Through their specially prepared men they are doing something to enlarge the bounds of knowledge. To be sure, such work is also being done to some extent in colleges and elsewhere, but the true home of the investigator is the university. This work of investigation is as important as the work of training men. What does it mean? All persons with healthy minds appear to agree that the world is advancing and improving. We see evidences of this on every side. Those results that appeal most strongly to mankind are, perhaps, the practical discoveries that contribute so much to the health and comfort of mankind. These are so familiar that they need not be recounted here. If great advances are being made in the field of electricity, in the field of medicine, in the field of applied chemistry, it is well to remember that the work that lies at the foundation of these advances has been done almost exclusively in the universities. It would be interesting to trace the history of some of these advances. We should find that in nearly every case the beginning can be found in some university workshop where an enthusiastic professor has spent his time prying into the secrets of nature. Rarely does the discoverer reap the tangible reward of his work—that is to say, he does not get rich—but what of it? He has his reward, and it is at least a fair question whether his reward is not higher than any that could be computed in dollars and cents.

The material value to the world of the work carried on in the university laboratories cannot be over-estimated. New industries are constantly springing up on the basis of such work. A direct connection has been shown to exist between the industrial condition of a country and the attitude of the country towards university work. It is generally accepted that the principal reason why Germany occupies such a high position in certain branches of industry, especially those founded upon chemistry, is that the universities of Germany have fostered the work of investigation more than those of any other country. That great thinker and investigator, Liebig, succeeded during the last century in impressing upon the minds of his countrymen the importance of encouraging investigations in the universities, and since that time the German laboratories of chemistry have been the leaders of the world. In Germany the chemical industries have grown to immense, almost inconceivable, proportions. Meanwhile the corresponding industries of Great Britain have steadily declined.

What I want to make clear is that universities are not luxuries, to be enjoyed or not, as we may please. They are necessities. Their work lies at the very foundation of national well-being.

The best thing we can do for our students is to give them good professors. Sumptuous laboratories, large collections of books and apparatus, extensive museums are well enough. They are necessary, no doubt. But I fear they are too much emphasised before the public. A university is, or ought to be, a body of well-trained, intelligent, industrious, productive teachers of high character provided with the means of doing their best work for their students, and therefore for the world.

NOTES.

PROF. WINOGRADSKY, of St. Petersburg, has been elected a correspondant of the Paris Academy of Sciences, in the Section of Rural Economy.

THE seventy-fourth meeting of the German Association of Naturalists and Physicians is this year to be held on Austrian soil, Carlsbad being the town selected, and the date September 21 to 27. The arrangements will be generally the same as those introduced at Hamburg last year, but it has been decided to add a new division to the medical group—the history of medicine—so that the scientific side will be represented by eleven divisions, as before, and the medical by seventeen.

THE following are among the lecture arrangements at the Royal Institution, after Easter:—Dr. Allan Macfadyen, three lectures on recent methods and results in biological inquiry; Prof. Karl Pearson, three lectures on the laws of heredity, with special reference to man; Prof. Dewar, three lectures on the oxygen group of elements; and Dr. A. Smith Woodward, three lectures on recent geological discoveries. The Friday evening meetings will commence on April 11, when Prof. Dewar will deliver a discourse on problems of the atmosphere. Succeeding Friday evening discourses will be delivered by Dr. J. Mackenzie Davidson, Sir Robert Ball, Sir Benjamin Baker, Mr. A. E. Tutton, and other gentlemen.

WE regret to see the announcement of the death of Sir Richard Temple, Bart., M.P., F.R.S., whose personality was well known in scientific and educational circles. He was vice-chairman of the School Board of London for three years from 1885 and afterwards chairman of the finance committee of the Board. He was also president of the Social Science Congress held at Huddersfield, and the author of several works on Indian and Eastern topics.

THE death is announced of Mr. Robert Pendlebury, fellow of St. John's College, Cambridge, and well known by his mathematical work. Mr. Pendlebury graduated in the mathematical tripos of 1870 as senior wrangler. He also graduated at the University of London, obtaining the senior University scholarship for mathematics and natural philosophy. He was in due course elected to a fellowship at St. John's, and for many years was one of the college lecturers in mathematics. He was also University lecturer in mathematics, but recently resigned all his appointments. He had been an examiner for the mathematical tripos on several occasions, and for some time a member of the Special Board for Mathematics.

WE learn from the *Victorian Naturalist* that the Central Australian expedition under the leadership of Prof. Baldwin Spencer and Mr. F. J. Gillen reached the Macarthur River, Northern Territory, but was detained at Borroloola, a small township about 50 miles from the mouth of the river, owing to the foundering of the steamer which should have taken them on to Port Darwin as previously arranged. The matter of affording the expedition some relief was brought before the Commonwealth Parliament without result. However, the Premier of Victoria (Hon. A. J. Peacock) placed himself in communication with the Queensland Government, and it was arranged to send a small steamer from Normanton and bring the party on to that port, from whence there is frequent communication with eastern Australia.

It is announced in the *Times* that the two Royal medals of the Royal Geographical Society have been awarded to Sir F. D. Lugard, for his African explorations and surveys, and to Major Molesworth Sykes, for his journeys in Persia, extending over nine years, and his valuable studies of the geography of the country. The other awards of the society have been made